

REMARKS

Claims 1-12 are pending in this application. Claims 9 and 10 have been amended to more distinctively claim Applicants' invention.

Claims Rejected under 35 USC §112

Corrections have been made to the rejected Claims 9 and 10 to more particularly point out and distinctively claim the subject matter.

Claims 1-7 are Rejected under 35 USC §102

Claims 1-8 and 11 are rejected under 35 U.S.C. §102(e) as being anticipated by Rathbun (U.S. Patent No. 6,138,123). The Examiner stated that

As to claim 1, Rathbun teaches a data structure (see column 3, lines 50-53), comprising: in a heap tree or similar data structure (see column 8, lines 37-40), comprising: a root level having a node group, the node group having k number of nodes (see figure 30), and see column 19, lines 55-57) and a second level having one supernode, the supernode having k number of node groups (see figure 33, where "supernode" is illustrated as node A, and node groups illustrated as nodes B and C).

In figure 33 of the Rathbun reference, it discloses a conventional heap data structure with G 40, A 20, B 10, C 30, F 60, D 50 and E 70, which is similar to what has been disclosed in Figure 1 in Applicants' application, with node 5, node 22, node 26, node 23, node 10, node 24, and node 17. Conversely, Claim 1 recites "a data structure, comprising: in a heap tree or similar data structure, comprising: a root level having a node group, the node group having k number of nodes; and a second level having one supernode, the supernode having k number of node groups." (Emphasis Added). The Rathbun reference does not disclose "a second level having one supernode, the supernode having k number of node groups".

Claim 2 further defines Claim 1 by reciting a data structure that comprises one or more holes in arbitrary leaf positions, the one or more holes representing absent values. (Emphasis Added). The Examiner stated that “[a]s to claim 2, Rathbun teaches the structure further comprising one or more holes in arbitrary leaf positions, the one or more holes representing absent values (see column 8, lines 62-65). Applicants have reviewed the cited section in Column 8, lines 62-65, in Rathbun, and this cited section does not disclose one or more holes in arbitrary leaf positions, but rather discuss generally about using the Rule for Fullness to determine when a G-node is full or sufficiently empty.

Claims 3-8 and 11 depend from Claim 1 and they are likewise allowable for at least the same reasons as Claim 1 which are incorporated by reference.

Claims 9-10 and 12 are Rejected under 35 USC §103(a)

Claims 9-10 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Rathbun (U.S. Patent No. 6,138,123) in view of Klayman (U.S. Patent No. 5,463,389). The Examiner stated that

As to claim 9, Rathbun does not teach wherein the data structure contains a hole counter that counts the number of holes below the point for one or more of the pointers.

Klayman teaches a data compression method and device utilizing children arrays (see Abstract), in which he teaches wherein the data structure contains a hole counter that counts the number of holes below the pointer for one or more of the pointers (see column 3, lines 49-53, and see column 6, lines 10-19).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Rathbun to include wherein the data structure contains a hold counter that counts the number of holes below the pointer for one or more of the pointers.

Claim 9 recites a data structure containing a hole counter that counts the number of holes below the pointer for one or more of the pointers, the hole counter being associated with one or more pointers, the hole counter representing the number of holes in a sub-heap below the one or more pointers.

In contrast, the Klayman reference discloses a child counter, not a hole counter, in which the child counter is incremented when a child is added and in which the child counter is decremented when a child is deleted. (Col. 3, lines 49-53). Therefore, neither the Rathbun nor the Klayman reference discloses, take either singularly or in combination, does not teach or suggest Claim 9 and the preceding claims.

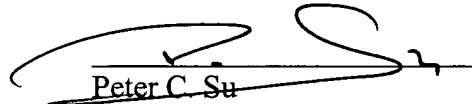
Claims 10 and 12 depend from Claim 1 and they are likewise allowable for at least the same reasons as Claim 1 which are incorporated by reference.

CONCLUSION

Claims 1-12 are pending in this application. In view of the above, it is respectfully submitted by Applicants that the claims are in condition for allowance. If the Examiner's action is other than allowance, the Examiner is invited to telephone Applicants' attorney at the number noted below.

Respectfully submitted,

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Date


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